

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A distributed type input buffer switch system, comprising:

at least one ~~input data processing means~~ input data buffering means matched to an input port for storing and managing input data by according to target output ports, requesting arbitration for switching, and storing and managing information on an arbitration-requested data;

an arbitration means for managing an arbitration request signal received from the ~~input data processing means~~ input data buffering means according to the ~~input data processing means~~ input data buffering means and the target output ~~port~~ ports and performing arbitration according to an arbitration request; and

a switching means for receiving data from the ~~input data processing means~~ input data buffering means and transmitting the same to the target output ports by performing switching according to a command from the arbitration means.

2. (Currently Amended) The system according to claim 1, wherein the ~~input data storing means~~ input data buffering means

comprises:

at least one first input information storing means for storing and managing input data inputted through the input ports ~~by output ports~~ according to the target output ports;

at least one second input information storing means matched to the first input information means for storing and managing information on an arbitration-requested data ~~for switching by output ports~~ to be transmitted to the target output ports; and

an input information control means for transmitting an arbitration request signal for an input data stored and managed by the first input information storing means and controlling the data for which the arbitration request signal is transmitted to be stored and managed by the second input information storing means.


3. (Currently Amended) The system according to claim 2, wherein the ~~input data storing means~~ input data buffering means further comprises:

means for transmitting the arbitration request signal for the input data to the arbitration means, if the second input information storing means has any free space for storing information ~~because the cell address information on more than the predetermined number of input data is not stored in the second input information storing means, wherein the input data are managed and stored by the first input information storing means and are queuing for an arbitration;~~

means for shifting existing cell address information stored in the second input information storing means;

means for storing sequentially the existing cell address information on the input data in the second input information storing means according to an input order; and

means for changing information on data to be processed to thereby process an arbitration request for the next input data in a queue.



4. (Currently Amended) The system according to claim 2, wherein the ~~input data storing means~~ input data buffering means ~~another~~ further comprises:

means for checking a cell address of the oldest input data stored and managed by the second input information storing means;

means for searching and transmitting the input data to the switching means by using the checked cell address;

means for indicating that there is no cell address that is stored and managed in a corresponding element of the second input information storing means in which a cell address had been stored before; and

means for storing the cell address from the second input information storing means in an idle cell address storing means in order to store new input data, if the new input data is inputted to the ~~input data processing means~~ input data buffering means.

5. (Currently Amended) The system according to claim 2, wherein the arbitration means comprises:

at least one request information storing means for storing and managing a transmission request signal transmitted from the ~~input data processing means~~ input data buffering means;

an arbitration processing means for processing arbitration so that switching of an arbitration request information stored in the request information storing means is performed; and

an arbitration request control means for requesting the arbitration processing means to perform arbitration by checking if an arbitration request information is stored in the request information storing means.

6. (Currently Amended) The system according to claim 5, wherein the first input information storing means, second input information storing means, and the request information storing means sequentially manage a given data according to an input order.


7. (Original) The system according to claim 5, wherein the transmission of data and signals is achieved by a pipeline operation between elements.

8. (Currently Amended) ~~In a~~ A method for processing input data adapted to a distributed-type input buffer switch system, ~~a method for processing input data,~~ the method comprising steps of:

a) at input data buffering means, ~~a first step in which an~~

~~input data processing means stores and manages~~ storing and managing
~~an the~~ input data received from a matched input port;

b) ~~at the input data buffering means, a second step in which~~
~~the input data processing means transmits~~ transmitting an
arbitration request signal ~~for of~~ the input data stored in the
input data buffering means to an arbitration means, and storing and
managing information on the input data ~~for~~ which the arbitration
request signal of the input data is transmitted;

 ~~a third step in which the arbitration request signal~~
~~transmitted to an arbitration means is managed~~ c) managing the
arbitration request signal transmitted to the arbitration means
according to the input data ~~processing~~ buffering means and ~~the a~~
target output port;

~~a fourth step in which arbitration is performed~~ d) performing
arbitration by checking an arbitration request according to the
input data ~~processing~~ buffering means and the target output port
and ~~the result is transmitted~~ transmitting a result of performing
arbitration to the input data ~~processing~~ buffering means and a
switching means; and

e) ~~at the input data buffering means, a fifth step in which~~
~~the input data processing means performs processing of the input~~
~~data by~~ processing the input data by checking information on the
stored input data upon receipt of an output grant signal and
transmitting the same to the switching means.

9. (Currently Amended) The method ~~according to~~ as recited in

claim 8, wherein the first step a) ~~further comprises~~ includes steps of:

~~a-1) at the input data buffering means, a sixth step in which the input data processing means receives~~ receiving an input data from the input port matched thereto; and


~~a seventh step in which the input data is stored and managed~~
a-2) storing and managing the input data by a corresponding first input information storing means by according to the target output ports.

10. (Currently Amended) The method ~~according to~~ as recited in claim 9, wherein the second step b) ~~further comprises~~ includes steps of:

~~b-1) an eighth step in which it is checked if information on more than a predetermined number of input data is stored in the second input information storing means being matched to the first input information storing means and storing information on an input data transmitted by generating an arbitration request signal, determining whether there is information on more than a predetermined number of input data in the second input information storing means, wherein the second input information storing means stores information on input data transmitted by generating an arbitration request and is matched to the first input information storing means in order to perform an arbitration request for data of which an arbitration request signal is not generated, among~~

input data managed and stored by the first input information storing means; and


~~a ninth step in which the eighth step is repeatedly performed~~
b-2) repeatedly performing the b-1) step after elapsing a predetermined time, if there is the information on more than the predetermined number of input data is stored in the second input information storing means, as the result of the checking in the eighth b-1) step; and

 ~~a tenth step in which an arbitration request signal for an input data of which an arbitration request is not performed is transmitted to the arbitration means, and the information on the data is stored in the second input information storing means, b-3) transmitting an arbitration request signal of an input data which is not process to transmit an arbitration request signal to the arbitration means and storing the information on the data in the second input information storing means, if there is no if the information on more than the predetermined number of input data is not stored in the second input information storing means, as the result of checking in the eight b-1) step.~~

11. (Currently Amended) The method ~~according to as recited in~~ claim 10, wherein the ~~tenth step b-3) further comprises~~ includes steps of:

~~an eleventh step in which an arbitration request signal for the input data managed and stored by the first input information storing means and queuing for an arbitration is transmitted to the~~

~~arbitration means, if the second input information storing means has any free space for storing information because the cell address information on more than the predetermined number of input data is not stored in the second input information storing means~~ b-3-i) transmitting an arbitration request signal of input data which is in a queue for arbitration process and storing and managing the input data in the first input information storing means, when there is a space for storing information in the second input information storing means;

 ~~a twelfth step in which the existing cell address information stored in the second input information storing means is shifted, and the cell address information on the input data is sequentially stored in the second input information storing means according to an input order~~ b-3-ii) shifting the existing cell address information stored in the second input information storing means and sequentially storing the existing cell address information on the input data in the second input information storing means according to an input order; and

~~a thirteenth step in which the first input information storing means changes information on data to be processed so that it can process an arbitration request for the next input data in a queue~~ b-3-iii) changing information on data to be processed in order to process an arbitration request for the next input data in a queue.

12. (Currently Amended) The method ~~according to~~ as recited in claim 8, wherein the third step c) further comprises includes steps

of:

~~a sixth step for c-1) checking the input data processing means~~
the input data buffering means and the target output port of the arbitration request signal transmitted to the arbitration means;

~~a seventh step for c-2) shifting the existing arbitration~~
request information from the request information storing means
corresponding to the checked input data ~~processing~~ buffering means
and the target output port; and

~~an eighth step for c-3) sequentially storing the transmitted~~
arbitration request signal in the request information storing means
according to an input order.

13. (Currently Amended) The method ~~according to~~ as recited in
claim 8, wherein the ~~fourth~~ step d) ~~further comprises~~ includes
steps of:

~~a sixth step for d-1) checking if an arbitration request~~
information is stored in the request information storing means
according to the input data ~~processing~~ buffering means and the
target output port- ;

~~a seventh step for d-2) generating an arbitration request~~
vector for the request information storing means having arbitration
request information to thus transmit the same to an arbitration
processing means;

~~an eighth step for d-3) performing an arbitration by checking~~
the arbitration request vector from each request information
storing means by the arbitration processing means;

~~a ninth step for d-4)~~ transmitting the result of performing the arbitration to the input data processing means and a switching means; and

~~a tenth step for d-5)~~ deleting the oldest arbitration request information of the arbitration request information stored in the request information storing means, which is arbitrated ~~to be~~ and granted to be outputted.

14. (Currently Amended) The method ~~according to as recited in~~ claim 13, wherein the ~~fifth step e)~~ further comprises includes steps of:

e-1) at the input data buffering means, a fourteenth step in ~~which the input data processing means having received an output grant signal from the arbitration means checks~~ checking the cell address of the oldest input data stored and managed by the second input information storing means;

e-2) a fifteenth step in which the input data is searched and ~~transmitted~~ searching and transmitting the input data to the switching means by using the checked cell address;

e-3) a sixteenth step in which it is indicated that there is no cell address stored and managed in the corresponding element of the second input information storing means in which a cell address had been stored before; and

e-4) a seventeenth step in which, if a new input data is ~~inputted to the input data processing means, the cell address from the second input information storing means is stored in an idle~~

Q1 ~~cell address storing means so as to stored the input data storing~~
the cell address form the second input information storing means in
an idle cell address storing means in order to store the input
data, if a new input data is inputted to the input data buffering
means.
